

CLAIMS

What is claimed is:

1. A lift apparatus for use in an exercise device having a support base and a moveable element such that the moveable element can be selectively raised and lowered relative to the support base by a user during operation of the exercise device, the lift apparatus comprising:

at least one motor assembly; and

a cam driven by said at least one motor assembly to raise and lower the moveable element.

2. An apparatus as recited in claim 1, wherein: (i) the motor assembly is coupled to the support base and is pivotally coupled to one portion of the cam, and (ii) a second portion of the cam is pivotally coupled to the support base and a third portion of the cam is linked to the moveable element.

3. An apparatus as recited in claim 1, wherein the cam has at least three different pivot locations.

4. The apparatus of claim 1, wherein said cam is linked to the moveable element.

5. The apparatus of claim 1, wherein an incline link bar links said cam to the moveable element.

6. The lift apparatus of claim 1, wherein said cam is linked to the support base.

7. The lift apparatus of claim 1, wherein a torsion bar pivotally links said cam to the support base.

8. The lift apparatus of claim 7, wherein said cam is attached to said torsion bar and said torsion bar is pivotally attached to the support base.

9. The lift apparatus of claim 8, wherein said cam comprises at least one triangularly shaped plate.

10. The lift apparatus of claim 9, wherein a first corner of said plate is fixed to a torsion bar, said torsion bar being pivotally attached to the support base, a second corner of said plate is pivotally attached to said at least one motor assembly, and a third corner of said plate is linked to the moveable element.

11. The lift apparatus of claim 10, wherein said third corner is pivotally attached to an incline link bar, said incline link bar being pivotally attached to the moveable element.

12. The lift apparatus of claim 1, wherein a force applied by said motor assembly to said cam results in a generally equivalent force applied to said incline link bar to raise said moveable element.

13. The lift apparatus of claim 1, wherein the motor assembly comprises a motor, a drive screw driven by the motor, and a sleeve movably coupled to the drive screw, wherein the cam is pivotally coupled to the sleeve.

WORKMAN NYDEGGER
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

14. A lift apparatus for use in a treadmill having a support base and a treadbase pivotally coupled to the support base such that the treadbase can be selectively inclined relative to the support base by a user during operation of the treadmill, the lift apparatus comprising:

at least one motor assembly; and

a cam driven by said at least one motor assembly to raise and lower the treadbase.

15. An apparatus as recited in claim 14, wherein: (i) the motor assembly is coupled to the support base and is pivotally coupled to one portion of the cam, and (ii) a second portion of the cam is pivotally coupled to the support base and a third portion of the cam is linked to the moveable element.

16. The lift apparatus of claim 14, wherein an incline link bar links said cam to the moveable element and wherein said cam is attached to said torsion bar and said torsion bar is pivotally attached to the support base.

17. The lift apparatus of claim 14, wherein said cam has at least three pivot locations.

18. The lift apparatus of claim 17, wherein a first pivot point of said cam is fixed to a torsion bar, said torsion bar being pivotally attached to the support base, a second corner of said cam is pivotally attached to said at least one motor assembly, and a third corner of said pivot point is linked to the moveable element.

19. The lift apparatus of claim 18, wherein a third corner of each of said plates is pivotally attached to an incline link bar, said incline link bar being pivotally attached to the moveable element.

20. The lift apparatus of claim 14, wherein a force applied by said motor assembly to said cam results in a generally equivalent force to raise said moveable element.

WORKMAN NYDEGGER
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

21. A lift apparatus for use in an exercise device having a support base and a moveable element pivotally coupled to the support base, wherein the moveable element can be selectively inclined relative to the support base by a user during operation of the exercise device, the improved lift apparatus comprising:

a first lift motor assembly linked to a first cam, said first cam being attached to a torsion bar, said torsion bar being linked to the support base; and

a second lift motor assembly linked to a second cam, said second cam being attached to said torsion bar;

wherein said first cam is also linked to said moveable element such that actuating the first and second lift motor assemblies raises said moveable element.

22. The lift apparatus of claim 21, wherein said first lift motor assembly is pivotally coupled to said first cam and said second lift motor assembly is pivotally coupled to said second cam.

23. The lift apparatus of claim 21, wherein said torsion bar is pivotally coupled to said support base.

24. The lift apparatus of claim 21, further comprising an incline link bar pivotally coupled on a first end to said first cam and pivotally coupled on a second end to said moveable element.

25. The lift apparatus of claim 21, wherein said first and second lift motor assemblies are pivotally coupled to said support base.

WORKMAN NYDEGGER
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

26. A treadmill comprising:

a support base

a treadbase pivotally coupled to the support base; and

a lift apparatus comprising:

a lift motor assembly pivotally coupled on a first end to the support base, and pivotally coupled on an opposite end to one portion of a cam, a second portion of the cam being pivotally linked to the support base; and

an incline link bar having a first end and a second end, the first end of the incline link bar being pivotally coupled to a third portion of said cam and the second end of the incline link bar being pivotally coupled to the treadbase.

27. The treadmill of claim 26, wherein said second portion of said cam is attached to a torsion bar that is pivotally coupled to said support base.

28. A treadmill as recited in claim 27, further comprising:

a second lift motor assembly pivotally coupled on a first end to the support base, and pivotally coupled on an opposite end to a second cam, said second cam being attached to said torsion bar.

29. The treadmill of claim 26, wherein a force applied by said motor assembly to said cam results in a generally equivalent force applied to said incline link bar to raise said moveable element.

30. The treadmill of claim 26, wherein said cam has three pivot locations.